



# Crane and Tower Operators

# LOGISTICS

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## **Job Overview**

Many people associate cranes with construction or utility companies. After all, tower cranes are used to erect skyscrapers, and their impressive height makes them visible for miles. Other commonly seen cranes are used to lift air conditioners onto rooftops, or place utility poles into the ground. In fact, cranes are used in many industries, including Logistics, to move equipment and supplies, transfer cargo from one vehicle to another, and load and unload ships and barges. Prior to the modern container-shipping era, it took up to three weeks to unload a cargo vessel. The development of the modern, high-speed container crane shortened that time to about 18 hours.

There are many different types of cranes, built to handle various types and shapes of material, in different environments. The Logistics industry is no different, with a number of specialized cranes used in sea and river ports. However, since much of the cargo shipped by boat or barge is now placed in containers, the container crane is the workhorse of the modern seaport cargo facility.

Container cranes can be fixed, ride on rails, or outfitted with massive tires that provide the most flexibility and freedom of movement. Some modern cranes can handle more than one container at a time. Other container cranes are smaller self-propelled machines capable of handling one container at a time. There are also several variations on the basic overhead container crane.

Of course, some cargo is just too massive or unwieldy to be placed inside of a container. This cargo needs a different type of crane to move it on and off ships. Heavy-lift mast cranes, developed in the 1980s, are ideal for this purpose. They can be mounted either on dry land or aboard the ship itself, and combine some of the features of the tower crane with a stationary derrick crane.

Crane Operators may use mechanical boom and cable or tower and cable equipment to lift and move materials, machines, or products in many directions. The operation of a container crane is a highly sought-after job that requires steady nerves, a tolerance of heights, and extensive training. Loading and unloading of some cargo may be guided by other workers with a better view of where cargo needs to be placed. Directions are provided by radio or hand signals. Computers are also becoming more common inside modern cranes to help Operators calculate loads and manage lifts.

# Crane and Tower Operators

## Typical Tasks

- ➔ Review daily work and delivery schedules to determine orders, sequences of deliveries, and special loading instructions.
- ➔ Determine load weights and check them against lifting capacities in order to prevent overload.
- ➔ Inspect and adjust crane mechanisms and lifting accessories in order to prevent malfunctions and damage.
- ➔ Direct helpers engaged in placing blocking and outrigging under cranes.
- ➔ Move levers, depress foot pedals, turn dials, and use computerized controls to operate cranes, cherry pickers, or other moving equipment designed for lifting, moving, and placing loads.
- ➔ Communicate with others by radio or wireless, giving and receiving directions from crew members on the site.
- ➔ Load and unload bundles or containers from trucks, ships, and/or trains, and move to next mode of transportation or storage areas, using cranes and other moving equipment.
- ➔ Weigh bundles, using scales, and record weights for company records.
- ➔ Direct truck drivers backing vehicles into loading bays, and cover, uncover, and secure loads for delivery.
- ➔ Clean, lubricate, and maintain mechanisms such as cables, pulleys, and grappling devices, making repairs as necessary.
- ➔ Inspect bundle packaging for conformance to regulations and customer requirements, and remove and batch packaging tickets.

*Detailed descriptions of this occupation may be found in the Occupational Information Network (O\*NET) at [online.onetcenter.org](http://online.onetcenter.org).*

## Important Skills, Knowledge, and Abilities

- ➔ Operation Monitoring — Watching gauges, dials, computer screens, or other indicators to make sure a machine is working properly.
- ➔ Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
- ➔ Equipment Selection — Determining the kind of tools and equipment needed to do a job.
- ➔ Coordination — Adjusting actions in relation to others' actions.
- ➔ Equipment Maintenance — Performing routine maintenance on equipment and determining when and what kind of maintenance is needed.
- ➔ Mechanical — Knowledge of machines and tools, including their designs, uses, repair, and maintenance.
- ➔ Building and Construction — Knowledge of materials, methods, and the tools involved in the construction or repair of houses, buildings, or other structures such as highways and roads.
- ➔ Control Precision — The ability to quickly and repeatedly adjust the controls of a machine or a vehicle to exact positions.
- ➔ Multilimb Coordination — The ability to coordinate two or more limbs (for example, two arms, two legs, or one leg and one arm) while sitting, standing, or lying down. It does not involve performing the activities while the whole body is in motion.

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- ➡ Reaction Time — The ability to quickly respond (with the hand, finger, or foot) to a signal (sound, light, picture) when it appears.
- ➡ Far Vision — The ability to see details at a distance.
- ➡ Depth Perception — The ability to judge which of several objects is closer or farther away from you, or to judge the distance between you and an object.

## Work Environment

Most Crane and Tower Operators work outdoors, but are at least somewhat protected from the elements by the Operator's cab. In the Logistics industry, cranes are often located at seaports, although sometimes those seaports are located miles inland.

Crane cabs are not built for comfort. Wind, rain, and hot sun can all make the Crane Operator's work less than comfortable. However, only high winds should affect the Operator's ability to move cargo quickly and safely.

The work is not physically demanding, although full-time Operators must sit for long periods of time, sometimes high up off the ground. Cranes used in Logistics are not usually as tall as some tower cranes used in construction, so it doesn't take as long to climb up to the cab, but a steep climb is still often necessary.

Since the crane is operated by using levers, pedals, buttons, or keyboards, physical strength is not a major factor in the ability to perform the job. However, excellent hearing and eyesight is necessary, since Crane Operators are often directed by verbal or signaled directions from other workers when placing large and heavy objects precisely into place onto a ship, railcar, truck, or dock.

This occupation is heavily unionized. The Longshoreman's Union covers Crane Operators at seaports, while Operating Engineers Locals represent many other workers in this occupation.

## California's Job Outlook and Wages

The California Outlook and Wage table below represents the occupation across all industries.

Standard Occupational Classification	Estimated Number of Workers 2004	Estimated Number of Workers 2014	Average Annual Openings	2006 Wage Range (per hour)
<b>Crane and Tower Operators</b>				
53-7021	2,500	3,200	120	\$16.27 to \$32.44

*Wages do not reflect self-employment.*

*Average annual openings include new jobs plus net replacements.*

*Source: [www.labormarketinfo.edd.ca.gov](http://www.labormarketinfo.edd.ca.gov), Employment Projections by Occupation and OES Employment & Wages by Occupation, Labor Market Information Division, Employment Development Department.*

Employment figures in the table above reflect only Crane and Tower Operators who work most of their hours on cranes. In fact, there are over 20,000 workers in California certified to operate cranes, but who do so rarely as part of another related occupation.

About 10 percent of all Crane Operators are certified to handle tower cranes in California, and these workers generally earn the higher wages listed above. As a result, competition for these jobs is strong.

# Crane and Tower Operators

## Trends

Employment for Crane and Tower Operators is expected to grow by 28 percent between 2004 and 2014, faster than average compared to all occupations in California. Additional jobs will become available as workers retire or leave the occupation for other reasons.

Perhaps the greatest change in the Logistics industry as it pertains to cranes was the development of the shipping container. This innovation allows containers to be dropped off anywhere a truck can go, a ship comes in, or a railroad is present. Containers can even be loaded onto aircraft. Containers are equally at home on the back of a truck trailer, riding piggyback on a flatbed railcar, or inside of or on the deck of an ocean-going ship.

A variety of cranes have been developed to load and unload containers onto sea-going vessels. These include gantry cranes, rubber-tired, ship-to-shore, and straddle cranes.

## Training/Requirements/Apprenticeships

Any person who operates a crane in California must be certified, with the exception of those who work at sea- or inland ports. Certification for Crane and Tower Operators has been required by California law since 2005. The National Commission for the Certification of Crane Operators (NCCCO) oversees the certification process and sends practical examiners to training sites. To find certification training programs in California, go to [www.nccco.org](http://www.nccco.org).

Certification requires the following:

- ➡ Be at least 18 years of age
- ➡ Meet medical physical requirements
- ➡ Comply with NCCCO substance abuse policy
- ➡ Pass written examination
- ➡ Pass practical examination

Candidates must pass the written and corresponding practical examinations within a twelve-month timeframe. The certificate is good for five years in California.

Crane Operators who work at seaports or inland ports are trained through the California Maritime Association and the International Longshore Workers Union. The State of California recognizes this training as sufficient to meet the standards set by the NCCCO.

Training and certification programs in California are available through unions or associations, employers, and through private training companies. Length of training can be as little as three days in private training centers; however those who train on the job generally learn the tasks within 12 months. Cost of training varies from little or no charge by employers or unions, to about \$2,000 for private training firms.

Examination fees for certification cost about \$225. Applicants also need to have use of a crane for the practical “hands-on” examination, and the cost of renting a crane for applicants can be about \$375 if employers or unions do not pick up the cost.

### Recommended High School Course Work

Classes that would be helpful to those interested in this type of work include metal, wood, or electronics shop, auto mechanics, and basic math. A computer course would also help, given some of the newer models of cranes have computerized controls.

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## Where Do I Find the Job?

Since Crane Operators tend to work in a unionized occupation, the union is a good place to look for a position. However, those who wish to work in seaports should first contact the Pacific Maritime Association office in their area, not the union or port personnel offices.

Use the *Search for Employers by Industry* feature on the *Career Center* page at [www.labormarketinfo.edd.ca.gov](http://www.labormarketinfo.edd.ca.gov) to locate employers in your area. Search under the following industry names to get a list of private firms and their addresses:

- ➡ Building Equipment Contractors
- ➡ Marine Cargo Handling
- ➡ Cement Manufacturing
- ➡ Other Specialty Trade Contractors

Search these **yellow page** headings for listings of private firms:

- ➡ Building Contractors
- ➡ Railroads
- ➡ Ports

## Where Can the Job Lead?

Crane Operators in the Logistics industry enjoy one of the highest paying and most responsible jobs in seaports or river ports. Promotional opportunities could include a supervisory or management position in the industry.

### Related Occupations

Dredge Operators  
Excavating and Loading Machine and Dragline Operators  
Hoist and Winch Operators  
Operating Engineers and Other Construction Equipment Operators  
Paving, Surfacing, and Tamping Equipment Operators  
Railroad Brake and Switch Operators (see Logistics Profile)

## Other Sources

National Commission for the Certification of Crane Operators  
[www.nccco.org](http://www.nccco.org)

Pacific Maritime Association  
[www.pmanet.org](http://www.pmanet.org)

International Union of Operating Engineers State Unit 12  
[www.iuoestateunit12.org](http://www.iuoestateunit12.org)

Operating Engineers of Northern California Local #3  
[www.oe3.org](http://www.oe3.org)

Mobile Crane Operators Group  
[www.sccaweb.org/mcog.htm](http://www.sccaweb.org/mcog.htm)

